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Tender Plants in Public Parks.

AT a session of the late Horticultural Congress in Chicago, Mr. William MacMillan, Superintendent of Parks in Buffalo, read an essay on the "Improvement and Care of Public Grounds," which, if we may judge from an abstract which we find in *The Florists' Exchange*, was a production of uncommon merit. Of course, in a discussion which covered such a broad field, only statements of the most comprehensive kind can be made, and it seems to us that if the paper could be expanded into a small treatise, where general rules could be illustrated by special examples, it would have a permanent value. The teachings, so far as we can judge by the extracts, are almost entirely in harmony with views which we have heretofore expressed, and if it were our purpose now to enforce any of them, we could do no better than to quote them verbatim in Mr. MacMillan's vigorous language.

What we have to say, however, has been suggested by the discussion which followed the paper, in which Mr. Robert Craig, of Philadelphia, one of the most capable and cultivated florists of the United States, seemed to take some exception to the tone of the essay. A careful reading of Mr. Craig's remarks, however, will convince any one that there is no serious difference of opinion between the speaker and the commentator. Mr. Craig had a good word for formal gardening; but the speaker had already said that where architectural features are used the structural character of the place might be emphasized by artificial planting, and in urban grounds of comparatively small area there were conditions where planting ought to be based largely on formal architectural lines. Mr. Craig spoke of the natural desire for color, and, in some cases, of high color; but the essayist had shown his appreciation of the same fact by his advice to use, even as features of the general landscape, plants with brilliant autumn colors and bright fruit, and by advocating besides this the preparation of a distinct section where a special display of color could be made with flowers and foliage. Mr. Craig's desire for a profuse use of flowers had been anticipated by Mr. MacMillan, who had strongly urged the abundant use of flowering herbs in addition to trees which flower, and to shrubs which flower still more abundantly, the only condition being that, where they are used as aids in the production of broad landscape-effects, they shall be naturally disposed, and not forced together in uncongenial companionship. The fact is, that men who have a genuine appreciation for natural beauty, as is evidently the case with both Mr. MacMillan and Mr. Craig, can find some place in their scheme of planting for all the brightness and beauty of the floral kingdom.

Perhaps it will not be denied that inasmuch as dwellers in cities whose days are confined within walls of stone, who are compelled always to walk on straight lines and turn square corners, who never see more than a little patch of blue overhead, bounded by a sky-line of cornices and chimneys, need something for their highest refreshment which is the exact antithesis of these conditions. The primary purpose in large city parks should, therefore, be to furnish broad rural scenery, with spacious skies and irregular tree and shrub borders which emphasize with their haze and obscurity the idea of distance, and so delight the visitor with a sense of enlargement and freedom. The introduction of flowers or color into such a scene is unquestionably proper where it does not destroy the effect of the scenery. There is many a place where our wild flowers could be naturalized with telling effect in parks, for they would be in perfect harmony with the scene. Very beautiful and appropriate, too, and beautiful because appropriate, would be the naturalization in the tall grass of such exotics as the Poet's Narcissus and blue Scilla campanulata, while the effect of shrub borders could often be heightened if there could be seen against them in their season the tall spires of Foxgloves and other flowering plants.

What Mr. MacMillan contends for is that "garden finery and fancy foliage" should not be introduced where the intention is to produce a simple rural scenery, because the introduction of bedding-plants and the like are altogether out of harmony with the spirit of the place. They not only mar it by their intrusion, but with such surroundings they do not even themselves show to good advantage. This fitness which enables the different features of any passage of scenery to combine harmoniously and helpfully is the cardinal point in planting. Many kinds of flowers and shrubs may be properly excluded from a landscape, because these plants, although good in themselves, are inappropriate and incongruous. Rising rather abruptly from an arm of one of the lakes in the Central Park there is a rocky slope which is meant to represent a bit of wild nature. No one could object to the crimson of Cardinal-flowers, or the purple of Loosestrife down by the border of the lake in such a scene, or to the orange glow of a clump of Asclepias tuberosa higher up, or to many another flowering herb quite as striking in its hue. A clump of Pæonies is no more brilliant than any of these, and yet every one would feel that it struck a false note, if introduced here, simply because it is only known as a garden-flower and we have never seen it growing wild in such a position. The same would be true of a Lilac-bush on the border, not because it is objectionable in form or color, but simply because we know this, too, as a garden-plant only, and it would be a denial at the point where it stood of what is meant to be asserted everywhere else in the scene. Mr. MacMillan would probably be the last man in the world to expel flowers and color from his landscapes; what he objects to is a prominent display of any object or element or feature which would be out of character with the general tone of the landscape.

But while there is abundant room for flowers, for color, and for formal planting in parks and gardens, there is one objection to the use of tender bedding-plants in large city parks to which Mr. MacMillan alluded. Landscape-effects, which are made with the simplest material, are constantly growing in interest, as the shrubs and trees develop their

beauty as individuals or in masses. Bedding-plants which are carefully propagated in the greenhouse during the winter and then planted out only to attain their best effect by midsummer, become a blot on the landscape as soon as they are bitten by the first frost. Hardy Asters and other perennials, which take care of themselves, then show their highest beauty, and they will grow into equal beauty another year. Trees which exact still less care not only have special charms to unfold every day of the year, but they increase in interest and in dignity of expression as they grow older, and will be much more impressive when they wear the crown of a hundred years than they were when they were planted. Trees and shrubs live on, developing new beauties every year without expense, while the transitory, summer-day effects produced with tender bedding-plants are always costly. We recently heard that the cost of the bedding-plants, with their care, in a single park in a western city, was $8,000 a year. At the end of ten years $80,000 will have been spent, and the first frost of that tenth year will leave nothing to show for all this money but a blackened mass of decay. If this $80,000 could be expended on the permanent improvement of the hardy trees, shrubs and herbs of this same park, no one can doubt that this outlay, intelligently made, would render it one of the most interesting pleasure-grounds in the world. Admitting all the value of color and symmetrical patterns in formal bedding, it is a fact that the usual attempts at planting of this sort are inartistic; they rarely show any positive beauty in their pattern-lines, and they are often offensive by the crude use of colors which are at constant war with each other. But, apart from this, the use of these plants is generally a needless extravagance. Where money can be spent to so much better purpose, it is a waste to lavish it upon a pattern-bed which can, at best, have only a transient interest for the uninstructed, and has no more permanent value to the community which is taxed for it than a picture painted on the sands of a beach at low tide.

We are glad to believe that this view of the case is gaining ground. It is only a few years ago since a distinguished horticultural writer declared that one of the Soldiers' Homes in the west was much superior to Central Park because there were used on the lawns about the building ten times as many bedding-plants as there were in the entire park. We are glad that such superintendents as Mr. Parsons, in this city, and Mr. MacMillan, in Buffalo, are entrusted with the administration of public grounds. Neither of them, we fear, can command enough money to properly maintain and develop the parks under their charge, but what they do have they use for the permanent improvement of the people's property.

The Distribution of some Forest-trees in the Southern States.

WITHIN the comparatively short time that has elapsed since the rich agricultural lands of the cretaceous plain in Alabama have passed into the undisputed possession of the white settlers, the character of the vegetation of this region has undergone a great change. Of the oldest settlers there are yet a number living who witnessed the original condition of the vast undulating plain, its upland covered with open forests of Oaks and Hickories, or with dense forests of a mixed growth of deciduous leaved trees and of the sombre Red Cedar. The Red Cedars formed a conspicuous feature, interrupted by extensive grassy glades, resembling in the assemblage of their plants the western prairies, or by immense brakes of the large Cane, Arundinaria macrosperma, which filled the bottoms of the streams subject to overflow and the swampy depressions in the plain. From this growth the section between the Alabama and Tombigbee Rivers received the name of the Canebrake region. This cretaceous plain, or so-called central prairie belt, with its deep black calcareous soil, deemed of inexhaustible fertility, attracted during the earlier parts of the century, and particularly after the removal of the aboriginal tribes west of the Mississippi River, a large immigration from the older slave-holding states. The open prairie-land having been first subjected to the plowshare, the forest was next encroached upon. Under a skillful system of drainage the canebrakes disappeared with no less rapidity. After a few decades the wilderness was converted into one of the most productive and wealthy agricultural regions on the continent, upon which the world was almost solely dependent for its supplies of cotton.

Of the splendid forests of Oak and Hickory, by which the deep black soil of the uplands was covered, only small groves surrounding the premises of the planters now remain standing. Of the Cedar hummocks, with their valuable timber resources of Red Cedar, White Ash, White Oak, Red Oak and Hackberries, only isolated tracts are left. These scarcely exceed a few hundred acres in one body, showing the effects of reckless devastation. The canebrakes are now reduced to narrow strips covering the banks of streams subject to frequent overflow, and to the open or so-called bald prairies with their thinner soil-covering utterly exhausted or removed by wind and rain, the bare ledges of limestone-rock being exposed to the surface. The native plants of the calcareous prairie-soil are found on waste lands and along the borders of cultivated fields.

The scanty remains of the forests which once covered the uplands indicate that three kinds of large forest-trees were formerly abundant. These are now rarely met with, and have until lately escaped the attention of botanists. They are the Nutmeg Hickory, Hicoria myristicæformis; the Pecan-tree, Hicoria Pecan, and the southern bastard White Oak or southern Pin Oak, Quercus Durandii, these Hickories being found more or less associated with this interesting and stately Oak.

The Nutmeg Hickory in Alabama and Mississippi appears to be confined to the cretaceous belt. According to observations made last June it is most frequently met with between the Alabama and Tombigbee Rivers in about 32° 30′ north latitude. It attains the size of a stately forest-tree, resembling in habit of growth the Pig-nut Hickory, with a sturdy trunk from eighteen to twenty-two inches in diameter. The full-grown tree is covered with a light gray bark, inclined to exfoliate in thin narrow strips, similar to that of the Shell-bark Hickory. The tree is easily recognized by its graceful foliage. The leaflets are smaller than in the allied species, almost silvery white on the lower surface, changing during the fall to a pale bronze. The Nutmeg Hickory produces its fruit in abundance, a thin pericarp, with four prominent ridges, enclosing the oval nut. In shape, size and color it resembles a nutmeg, the hard and thick shell closely investing the sweet kernel. I was first made aware of the presence of this tree in the eastern Gulf states by the nuts seen among the forest-products of the state of Mississippi at the New Orleans Exposition in 1884. Subsequently some nuts were found in the hands of children, and the tree was traced to the vicinity of the banks of the Alabama, in Dallas County, and later on to the vicinity of Demopolis and Gallion, in the basin of the Tombigbee River. By its discovery in the eastern Gulf region the gap has been filled which existed along the line of its distribution from the Atlantic coast in South Carolina through Louisiana, west of the Mississippi River, southern Arkansas and Texas to northern Mexico.

The Pecan-tree, H. Pecan, has, during the early part of this season, for the first time been noticed as indigenous in Alabama. Old trees have been found near Gallion associated with the Nutmeg Hickory, and such trees have frequently been left standing in the clearings of the original forest. At the present day these remains of the original tree-covering of the country are becoming scarce, being, however, replaced by their voluntary offspring scattered about in the plantations. At Faunsdale, in Marengo County, there exists under protection a fine grove of such voluntary trees in every stage of growth, surrounding the few old trees of the original forest which yet survive. Heretofore this tree was not known outside of the Mississippi bottom in the lower Mississippi region. The Pecan was, under similar conditions, observed in the prairie region of Mississippi at Starkville, as pointed out to me by Professor Tracey.

Quercus Durandii is rather frequent in the so-called prairie region of Alabama, where, in the rich calcareous soil, it rivals the White Oak in dimensions. This truly noble Oak, first discovered by Professor Buckley in this state, reaches its northern limit in Alabama in the valley of the Mulberry fork of the Tombigbee River, in Blount County. In the Cotton belt it is known by the name of Pin Oak. Its wood splits easily and clean, having formerly been used for the pins in the cotton-gins, and also for the making of spools. This tree, receiving no recognition by the writers upon American botany for such a long series of years after its discovery, is now found to have a wide range in the southern Atlantic forest-region west of the Appalachian Mountains—extending over the rich calcareous soils in the south-west from north Alabama to the valley of the Colorado, in Texas (Buckley), and in that state ranging from

the lower course of the Guadaloupe River (Victoria, Mohr) to the upper waters of the Trinity River. A remarkable fact in the distribution of these three trees is their association west of the Appalachian Mountains for distances of such wide extent.

Mobile, Ala. *C. Mohr.*

Dwarfing Plants in Japan.

AT a meeting of the nurserymen's section of the Horticultural Congress, recently held at Chicago, Mr. Henry Izawa, gardener of the Imperial Japanese Commission to the Columbian Exposition, read a paper on some Japanese nursery practice, from which we make the following extracts:

The art of dwarfing plants is so little known in other lands that a short description of its process is not out of place here. The successful Japanese nurseryman must not only be a good grower, but he must also be an artist, conversant with the general arts and customs of his country, which differ very materially with those of any other country. The Pines may be considered the most important of all trees in Japan, and great care is taken in their cultivation and preservation. The most popular ones are Pinus densiflora, Pinus parviflora and Pinus Thunbergii. They are generally grown from seed, and great care is taken to select the choicest quality of seed. In the spring of the second year, when the seedlings are about eight inches in height, they are staked with Bamboo-canes and tied with rice straw, the plants being bent in different desirable shapes. In the next fall they are transplanted to a richer soil and are well fertilized. In the following spring the plants are restaked and twisted and tied in fanciful forms. This mode of treatment is given until the seventh year, when the trees will have assumed fairly large proportions, the branches being trained in graceful forms, and the foliage like small clouds of dense green. The plants are now taken up and placed in pots one and a half feet in diameter, and are kept well watered every succeeding year; great care must be taken to keep new shoots pinched back. After another three years of this treatment, the trees are virtually dwarfed, there being no visible growth thereafter.

The dwarfing of Bamboo is another important branch of the Japanese nursery business. A few weeks after the shoots begin to grow, and when the trunks measure about three inches in circumference and five feet in height, the bark is removed, piece by piece, from the joint. After five weeks, when the plants get somewhat stout, the stem is bent and tied in. After three months, when the side-shoots grow strong enough, they are all cut off five or six inches from the main trunk; they are then dug up and potted in sand. Care should be taken not to use any fertilizer, but plenty of water should be given. Cut off the large shoots every year, in May or June, and after three years the twigs and leaves will present admirable yellow and green tints.

Dwarfed Thuyas are produced by grafting. Let a Thuya Lobbi seedling grow in fertile soil until it becomes about five feet in height, then in the middle of spring we cut off all the branches, leaving the trunk and top branch. With a quarter-inch chisel a cut is made in the thickest portion of the trunk, an inch deep, at distances of two or three inch space, so that the trunk can be bent more easily in the desired direction. Rice straw is twisted around the trunk, which is bent in many curious forms and fanciful shapes. In the spring of the second year of this treatment the plants are potted in rich soil; in two years more, when the plants have assumed permanent forms, Thuya obtusa is grafted on the stem of T. Lobbi.

The process of grafting is, in brief, as follows: We give plenty of fertilizer to the plant of Thuya Lobbi, and, in early spring, take two-inch shoots of Thuya obtusa, cut the ends slantwise and insert them in the smaller portions of the Thuya Lobbi trunk, using one graft to every inch on the trunk. We then wrap the grafts with rice straw and take them to a shaded, windless room with the temperature of thirty-five degrees Fahrenheit. For three weeks the temperature is raised one or two degrees daily, and by that time a little breeze may be admitted; the temperature of the room is kept at sixty degrees for two weeks, and at seventy degrees for two weeks, and then leaves will start from the grafted twigs. In the latter part of spring, when the temperature in and out-of-doors becomes uniform, the plants can be safely transferred to some shady position out-of-doors. In the fall, when all the grafts have taken good hold, all the remaining shoots of Thuya Lobbi are cut off. Transplant every year in good rich soil; six years will be sufficient to produce handsome specimens of dwarfed Thuyas. All kinds of Conifers are treated in a similar manner. There is also a great demand for curiosities in mixed grafted Conifers, that is, six or seven kinds of Conifers on one plant.

Maples form one of the best materials for the artistic fancies of the Japanese graftsman. Many times a great many different varieties are grafted on one stem. Seedling Maples are spliced and tied together when growing. After they have formed a union the desired shoot is cut off—this is kept up until ten or twenty varieties are obtained. Maples thus grafted form lovely features for lawns, their varying hues and types of foliage enhancing each other's beauty.

The æsthetic idea shows itself in every line of Japanese industry, and especially is it the case with our nursery and landscape gardeners. The most inexperienced need not fear any difficulty in our mode of gardening if he but uses his mind and efforts in the right direction. The skillful artist introduces into his miniature garden not regular geometrical forms, but anything odd, irregular and artistic. To us gardening is not mathematics, but an art; hills, dales, rivulets, waterfalls, bridges, etc., vie with each other in presenting their quaintest forms and fancies and harmonious symmetries. Dwarfed plants of all descriptions deck the scene here and there in thousands of peculiarly artistic shapes. We derive lessons from nature and strive to imitate her as much as is practicable, although on a smaller scale.

Plants on the Pribyloff Islands.

AMONG the commonest and most conspicuous flowers growing on the Pribyloff Islands are Papaver nudicaule and Aconitum Napellus, var. delphinifolium, Seringe. Though the Iceland Poppy, Papaver nudicaule, is found in a few localities on the Aleutian Islands, the Pribyloff Islands may be taken as its southern limit of abundance in Behring Sea; on these islands it is to be seen everywhere. On hill-tops or slopes with a northern or eastern exposure the plants are low, and the flowers small, a tuft of them resembling in every respect plants of the same species seen by the writer on high mountain-tops in British Columbia, and along the shores of Hudson Bay. It is in upland meadows or among sand-dunes that this lovely Poppy is to be seen in its glory. There it attains a height of from nine to twelve inches, while many of its blossoms are two, or even two and a half, inches in diameter. When growing among grass or other flowers it does not form tufts, but in favorable situations among sand-dunes clumps several feet in diameter are common, its lemon-yellow flowers forming such large masses that they can be readily seen from vessels half a mile from the shore.

Aconitum Napellus, var. delphinifolium, presents even greater variation as regards size and general appearance. In exposed situations the short slender stem is scarcely longer than the single blossom which crowns it, while among the Elymus and Calamagrostis of the low grounds it grows to from two and a half to three feet in height, is sometimes much-branched, and, altogether, seems quite a different plant. Specimens of this species sometimes differ much more widely from one another in general appearance than the larger ones do from A. Kamtschatchense, a nearly related, but quite distinct, species, which grows with the other in low situations, and is seldom separated from it by collectors.

Ottawa, Canada. *James M. Macoun.*

New or Little-known Plants.

Lilium giganteum.

ALTHOUGH this Lily was introduced to cultivation more than forty years ago, it is seldom seen, and this can be accounted for, perhaps, by the fact that it is not considered reliably hardy. Here in eastern Massachusetts it has stood the tests of two winters, one of more than ordinary severity, with no more protection than that given to many plants that we consider hardy. This would seem to prove that in this latitude, at least, it can reasonably be called a hardy Lily. Clumps of it growing among tall shrubs have a very bold and imposing effect, and such a position seems admirably suited to it, since it affords not only a partial shade, but what is of the first importance, protection from high winds.

The illustration on page 376 is from a photograph of a group of these Lilies growing on the estate of Mr. John Simpkins, Yarmouthport, Massachusetts. The bulbs were imported from England in the fall of 1890, in two sizes,

flowering bulbs as large as cocoanuts, and smaller ones about two inches in diameter. They were all potted and wintered over in a cold frame. On May 9th, 1891, they were planted out in a prepared bed consisting of peat and loam in equal parts. The large bulbs proved a complete failure; their grip on the ground did not seem sufficiently strong to enable them to throw up a spike at all characteristic of the species.

Three of the smaller bulbs grew well, but showed no signs of flowering until this year. They were protected in winter by a soap-box inverted over each bulb, and over this eighteen inches of Oak-leaves. As early as the middle of April growth had begun, and necessitated the removal of the winter covering; their development from this time until they reached a maximum height of ten feet and a diameter of four inches at the base of the stems was very rapid, and the plants bore an average of eighteen flowers each. Although planted by the margin of a swamp, and only two feet above the water-line, it was found necessary to give the surface-soil frequent waterings, liquid-manure being used at every watering. This Lily starts into growth so early in the season that some care must be exercised in protecting it from late spring frosts, which would be disastrous to it. An inverted flour-barrel affords good nightly protection until the plant attains some height, when a covering of light cotton cloth can be used.

Lilium giganteum, while a most interesting plant to watch during its rapid growth, is rather a disappointment when it finally opens its flowers, for one naturally expects from such a huge stem a flower of like proportion. Such is not the case, however, the individual flowers being no larger than those of the Bermuda Easter Lily. One gets the impression when looking at the plant that nature had been so lavish of her energy in building up the stem and foliage that she had little left for the crowning effort of flowering. The flowers emit a spicy odor, which is so strong as to be almost overpowering and not altogether agreeable to many persons.

Lilium Wallichianum superbum, a near neighbor of L. giganteum in its native habitat, and withal a very beautiful plant, has proved itself quite hardy here with a slight protection of Oak-leaves. It spares the planter any anxiety on the score of spring frosts by starting into growth about the last of all the Liliums. From two bulbs planted out two years ago we had this year four growths six feet high with forty flowers.

Yarmouthport, Mass. *J. Brydon.*

Cultural Department.

Notes on Russian Fruits.

AFTER working upon them for upward of twenty years, I realize that if I were to continue for another equal length of time it would be still difficult to give decisive conclusions regarding the vast variety of tree-fruits which the good-will of Russian pomologists and the Russian Government have favored us with. Here is a country almost as large as ours, and all of it north of this latitude of forty-five degrees, north, upon which I am making tests. It is true that southern Russia, though on the same parallel, has a much warmer climate than northern Vermont. Judging from its productions, the climate of southern Russia resembles more that of southern rather than of northern New England.

But the chief collections sent to this country have been made mainly in central Russia, not far from the parallel of sixty degrees; and thermometrical records seem to show a winter climate in those parts of Russia very closely resembling that of Minnesota and the Dakotas. This is approximately the region of Russia's Pear and Plum orchards, as well as of the fine apples; while farther north only Apples and Cherries are grown. The difficulties of intercourse between these great provinces (almost as large as our states) has tended to make the varieties of tree-fruits quite local in each; and this, in a measure, accounts for the large number of varieties which have been sent to us. There are now under test in this country scarcely less than four hundred named varieties of these Russian tree-fruits—perhaps ten times as many as can be found in any single Russian locality—except some of the testing orchards of the new experiment stations.

This is an immense amount of material to be thrown into the hands of American experimenters, east and west; and the work of handling it has been chiefly confined to a few interested individuals in Minnesota, Iowa and Wisconsin; and eastward in Vermont and Canada, and in the experimental grounds of some of the State Agricultural Colleges, along our northern borders.

The first importations of Russian tree-fruits were confined solely to Apples. It was not until the return of what is known as the Budd-Gibb expedition, some ten years since, that we learned anything about the Pears, Plums and Cherries of Russia. These ten years have certified to us that Russia has all these in much hardier forms, as regards resistance to the severities of winter climate, than were before known to us. After fifteen years of experiment, I had fully established the discouraging fact that, with very slight exceptions, we had in America not a single variety of orchard fruit, aside from apples, that would endure the winter climate of northern New England. Ten years' subsequent testing of the Russian varieties has shown me not one that is not as hardy, along the Canada line, as the common and popular old sorts are in eastern Massachusetts. There are, however, no heart cherries among them; and the pears, though fairly good, are inferior in both size and quality to our best native and European kinds. The plums are very good, but no less subject to damage from the curculio than the old stock. All the Russian tree-fruits appear to have much thicker foliage than our old sorts, and to resist blight and the attacks of other fungal diseases. They are good growers while young, but come to bearing soon; and thereafter, though continuing healthy, are moderate in their growth, and tend toward dwarfishness.

Although their early and free bearing would recommend these Russian tree-fruits anywhere, and though they furnish material for crossing that may prove advantageous, I think it important to avoid possible disappointment by refraining from any undue estimate of their value. They are a valuable stock to experiment with, and breed from. They are invaluable where the older kinds will not endure the climate.

The nomenclature of these numerous varieties of tree-fruits from Russia is, and I fear for some time must be, somewhat confused. So many kinds have been imported, and the two sections, north-western and north-eastern, where they are likely to be most planted, are so widely separated, and many distinct sorts have yet so much similarity, that it will take a long time to assort and apportion the names correctly. The best authorities on these points are unquestionably Prof. J. L. Budd, of the Iowa Agricultural College, at Ames, Iowa; and Mr. John Craig, Horticulturalist of the Canadian Department of Agriculture, at Ottawa. Under the charge of each of these are large testing-grounds and orchards. To them the many private individuals who are planting and testing the numerous sorts under trial must often refer for identifications; and the nurserymen, who are commencing to propagate them, ought to take the greatest possible pains to avoid the beginnings of evil in this direction. From my own experience I should think it easy, in due time, to make select lists for each locality, that would prevent waste of time and serious disappointment in distribution. My own plantings are growing vigorously, though carrying very little fruit this year.

Newport, Vt. *T. H. Hoskins.*

Grapes in North Carolina.

IF the other of Munson's seedlings which we have yet to fruit are as excellent as Munson's Brilliant Grape, which is now in bearing here, there is little left to be desired in our native Grapes. I have not learned how this Grape will do in a more northern climate, and I undertand that some of these seedlings are rather tender in winter. I have never tasted any native grape that compares favorably with the Brilliant. One of its most remarkable characteristics for a native grape is the skin, which melts away with the pulp, and has no trace of acidity. The gentleman who grew the grapes I ate to-day, for our own Munson vines will not fruit until next season, is a painstaking cultivator, and his grapes are all bagged. As a result of his careful treatment he is getting fifteen cents per pound for his fruit in the northern cities, while most of our growers are utterly discouraged by low prices. But he grows only the choicest kinds, while they have filled their vineyards with Champion and Ives.

At our station we have a superb crop of Black Hamburgs and Muscats under glass in a cold grapery. Some of them we shall ship to test whether cold-grapery grapes can be made to pay here. I am inclined to believe that they will pay if allowed to start early and ripen in July. Our vines this year were kept

back as late as possible by being trained along the outer wall. Cold-grapery grapes can be put on the market from this section before the California crop comes in, and if well grown should bring a good price. We have some four-pound clusters of Black Hamburg, Golden Hamburg and Tokays. These are superb, being the first full crop of young vines. This grapery was planted for cross-fertilizing purposes, and we have Munson's Brilliant planted in it with the best foreign varieties. A grape with a little more size and as good quality as Brilliant will leave little to be wished for.

We made an experiment this season with a long trellis of Concord Grapes. Part of the trellis was boarded up on the west side, and a coping built which projects twenty inches. This part of the trellis was not sprayed at all; the remainder was carefully sprayed. Both were comparatively free from rot, while unsprayed grapes on vines near by all rotted. The protected vines grew more luxuriantly than those on the exposed trellises, and the fruit is of larger size. But while I was away at our summer Farmers' Institutes the thrips came down on the sheltered part of the vines, and the damaged foliage has failed to ripen the fruit. Those in whose charge the vines were left attributed the injury to the shelter, but I soon saw it was caused by the enemy I battled with years ago under glass. If taken in time, the attack could have been prevented. One thing, however, seems proved, so far as one season can prove anything, that shelter will keep off the rot as well as spraying will. This was the result of experiments made by me years ago in Virginia, and I am of the opinion that shelter can be provided cheap enough to have it pay to use it. My present shelter is too costly, being made of inch pine-boards, which, though cheap here, are much more costly elsewhere. In the sand-hills about Southern Pines, seventy-five miles south of Raleigh, the rot has not yet appeared to any extent, and as the growers there are planting largely of superior sorts of Grapes, the vineyard interests in that region have a good prospect. Grapes certainly thrive wonderfully in these sandy soils, and Southern Pines is rapidly becoming a southern Vineland.

We have all of Munson's seedling Grapes planted, and will note their progress with a good deal of interest, while growing some seedlings of our own. The great desideratum here is a good September Grape to fill the gap between the varieties grown for the northern market and the Scuppernong season.

Raleigh, N. C. *W. F. Massey.*

Preparatory Work.

AT this season of the year there are many preparations that should be attended to in every well-conducted garden. This is the best time for repairing the greenhouses and conservatory, for all but the most delicate species may be removed temporarily, and a thorough clearance effected. Painting, glazing, repairing of benches and walks and a thorough examination of the heating apparatus are among the many items that will readily suggest themselves.

The renewal of benches is a considerable item in the expense account of a large establishment, and for general purposes the more permanent construction of iron and slate is doubtless superior to the common wooden staging. The question of first cost, is, however, one of much importance to many desirous of having a small greenhouse, and where this question arises the wooden bench is the general result. The lasting qualities of such wood-work may be much improved by the use of various preparations. A thorough painting with crude petroleum is an excellent preservative, though for a time it has the disadvantage of being unpleasantly odorous, while a coating of Portland cement applied with a brush, or even a good whitewashing, is also beneficial and will destroy many insects and much of the fungoid growths so prevalent in old structures. Neat and well-made walks add much to the comfort and appearance of a greenhouse, probably the most satisfactory material for the purpose being cement concrete, the color of which may be toned by the addition of some coloring matter. Such a floor is clean and durable, and can be constructed by any one familiar with the use of tools. A well-laid floor of tiles or of fire-brick is more elaborate and costly, and requires more scrubbing to keep it in good order, while the cheapest of all may be made from fine coal ashes well rammed down.

The propagating-bed should be renewed, with either sand or cocoa-fibre refuse, according to the class of cuttings for which it is to be used. This will soon come into use for some early cuttings of Geraniums and for Coleus and other bedding plants which should be secured before the first frosts check their growth. These early-rooted Geraniums often prove useful for conservatory-decoration during the winter and spring, and the young plants of Coleus, Achryanthus and other plants of like character are much more satisfactory for producing cuttings for spring stock than those from old plants lifted in the fall. Named varieties of Verbenas should also be propagated in the same way. The best method of securing the cuttings being to shear all the flowers off the stock plants, then give them a good soaking of water if the weather is dry. In a few days an abundant young growth will be secured, of just the quality for satisfactory cuttings. Of course, none but perfectly healthy plants should be selected for this purpose, or an attack of Verbena-rust, so-called, will ensue.

The early bulbs of Lilium Harrisii are now being received, and if required for the holidays must be potted at once. Small bulbs are decidedly the best for early forcing, those measuring from five to seven inches in circumference being the most suitable size; these may be potted into five-inch pots. Chrysanthemums will naturally demand much attention during the next four months. First-quality flowers require careful cultivation, disbudding alone taking a great amount of time. Watering and fertilizing require constant exercise of judgment. Carnations outdoors will not need any further pinching at present, and can be lifted as soon as convenient after September 1st. The question of lifting Carnations while the ground is dry, I think need cause no anxiety on the part of the cultivator, the main point being the after-care that the plants receive, such as frequent syringing and care in ventilation for a few days after the transplanting, in order to allow the plants to recover from the shock.

Bouvardias also should soon be lifted, and require the same kind of treatment after the operation, the outdoor growth being usually somewhat rank and soft.

Among the bedding plants that should be remembered in preparatory work for the following season is Begonia Vernon, one of the semperflorens group, and one that stands exposure to the full sun very well, its bronzy foliage and bright red flowers being noticeably pretty. For winter flowering, Begonia incarnata and B. Gloire de Sceaux should not be omitted, there still being time to prepare useful plants of these varieties providing they are given reasonably good treatment.

Still another matter of importance at this time is the preparation of a compost heap for next year. The basis of which should be thick sods from an old pasture, these being neatly stacked with a reasonable proportion of good stable-manure between the layers. This old-fashioned compost is quite satisfactory for the majority of gardening operations.

Holmesburg, Pa. *W. H. Taplin.*

How to Grow Vigorous Carnations.

AT the late Convention of the Society of American Florists, Mr. C. H. Allen, of Floral Park, New York, read an essay on Carnations, from which the following passages have been selected for their practical value:

In the propagation of the Carnation, selection as a means of increased vitality is sadly overlooked. When any plant has been grown for a long series of years under unnatural conditions, as in the case of Carnations from cuttings, instead of from seeds, there will be a natural tendency toward deterioration, which will manifest itself in various ways, the more common being an impoverished vitality. This is attributed to the too commonly expressed opinion that varieties run out. Varieties do run out, but this is from neglect in a majority of cases. When the same care is used to perpetuate a variety that was given by the systematic hybridizer to produce it there will be no deterioration. When varieties like Silver Spray, Buttercup, William Scott, Edna Craig and numerous other excellent sorts are produced it should be the great object to perpetuate them. To that end the greatest care in selection should be observed, health being the important consideration. Cuttings should, in all cases, be taken from plants showing the greatest vigor in growth, color and substance of foliage and a tendency to free flowering.

It is the ultimate object of all plant-life to produce seed, and the plants showing the greatest tendency to bloom show, as a rule, the greatest amount of vitality, and from such plants should cuttings be taken. Hence has arisen the general opinion that cuttings should be taken only from stems bearing flowers. With due respect to disseminators of new varieties, it is our opinion that the tendency of the trade is to make the most of a variety rather than the best. The effort has not been to select with a view to developing health and strength, but to produce as many plants as possible, while they bring a high price because of their novelty.

The general impression is that the Carnation will not stand as much manure as the Rose or Chrysanthemum. As an experiment, last September I planted a bench of Lizzie McGowan in soil, one-half well-rotted cow and horse manure and one-half decayed sod, the plants being set one foot apart to allow free circulation of air. As soon as the roots had taken hold I began using water enriched with one peck of night-soil and two ounces of nitrate of soda to fifty gallons of water, applying the same once a week until January 1st, twice a week thereafter. Disbudding was attended to thoroughly, one bud being left to a stem, all others being removed as soon as they appeared. The results were long, stiff stems, fifteen to twenty inches long, flowers three inches in diameter; returns from commission dealer, November 15th to December 20th, three dollars per hundred; Christmas week, five dollars per hundred; January 1st, through Lent, three dollars per hundred; Easter, six dollars per hundred. Hereafter I shall disbud and fertilize all Carnations in my houses more heavily than I did the McGowans last year. Another experiment: Plants taken from sand May 1st, planted June 1st on the bench in a house which has side and ridge ventilation, and in soil as rich as that used for the Lizzie McGowans last season, are now (August 1st) showing much better color and substance in foliage than plants of the same sorts rooted April 1st and planted outside, the latter having to stand the severe drought of the past two months. We have been able to water and care for those inside at little expense.

This experiment has been made to settle for ourselves the

Fig. 57.—Lilium giganteum, in Yarmouthport, Massachusetts.—See page 373.

question, can Carnations be grown inside during summer to an advantage? The full result of this test cannot be given until the plants outside have been compared the coming season with those which have been housed all summer. From present appearances I should not hesitate to fill my houses with plants in June for flowering the following season.

Garden Notes.

CENTROSEMA GRANDIFLORA, introduced this year by A. Blanc, of Philadelphia, proves to be a quick-growing vine, with very attractive pea-shaped flower, having large standards, which approach two inches in diameter. It bears flowers freely, forming one to three at each joint on short peduncles. The flowers, however, are only attractive in the morning and close in a few hours. The Centrosemas are classed with Clitorias by Lindley and other botanists. The species are mostly South American, and are not hardy. The one under notice is said to be perfectly hardy here, and I understand is a native species, in which case the specific name is more likely to be C. Mariana than C. grandiflora. In any case, it is only claimed as an attractive, long-known flower not previously introduced to cultivation. It is readily grown from seed, which germinate quickly in moderate warmth.

DWARF DAHLIAS are now beginning to luxuriate in the cool night. Unless tall-growing plants are desired for some special effect, the new strains of dwarf Dahlias are by far the most satisfactory single-flowered ones for garden purposes. They form compact spreading plants, only about eighteen inches high, which require no staking and are covered with buds and flowers in great profusion. The French strain grown here has flowers of an infinite variety of colors—whites, yellows, pinks and reds, in selfs and all possible combinations. Many of them are blotched and striped. They are propagated readily from old tubers, or a stock may be had very quickly from seeds, which are produced only too freely. These it is not necessary to plant before April. At present some self-sown seedlings in the garden are forming buds and will be in flower in a few days. I do not mean to assert that these plants are hardy annuals, but under favorable conditions one often finds in an undisturbed garden wild seedlings from plants which are unmistakably tender.

HARDY BULBS.—Now that the Dahlias and Sunflowers are with us, it is time to prepare for winter and a new spring season. No time should be lost in securing all the bulbs desired and in planting them as soon as received. In a warm locality, where a bulb can make even slight progress during an ordinary winter, early planting is possibly not of so much importance, but there is little doubt that in colder localities, where the earth freezes hard and remains so during the season, late planting has a very detrimental effect on many bulbs. This may not be seen the first season after planting, for many bulbs will flower very well without much root-growth on first planting. These bulbs, however, seldom mature their growth for the next year, and will often be found diseased, if not killed, when examined after the ripening of the foliage.

HARDY HERBACEOUS PLANTS.—Many of the early-flowering herbaceous plants may now be divided and replanted. Especial attention should be given to Pæonies and plants which possibly have exhausted their soil. The fall rains will soon start up the hardy Poppies, whose roots may be cut up for increase of stock. A sowing of Pansies may soon be made, and bare places sown with seeds of hardy annuals. In fact, in whichever direction one looks in the garden at this season, he is impressed with the fact that vacation-time is over, and from this time to December is the most pressing season of the year for garden work.

Elizabeth, N. J. *J. N. G.*

Cassava for Bedding.—Those who desire plants for subtropical bedding should try the Cassava. While the plant may not be of much economic importance north of Florida, it, nevertheless, forms a conspicuous and handsome specimen in our hot summers anywhere. Like many others of the Euphorbiaceæ, it withstands drought well, but rejoices in heat and moisture. A friend in Florida sent me a short piece of stem last spring, which was buried in one of my flower-borders. To-day the plant is five feet high and as many broad. Its handsome palmate leaves somewhat suggest Ricinus, but are more beautiful. Each of the seven-parted palmate leaves is supported on an exceedingly long petiole, and the entire petiole is bright red. These broad divided leaves and long red petioles, combined with the symmetrical habit of the plant, make it one of the handsomest objects on my lawn. Further north it may not develop into such rank luxuriance if started in the open ground, but as the pieces of stem grow readily, it would be easy to start the plants in a greenhouse in spring and transfer them to the garden when the weather is warm. I would advise all who want a really handsome plant to add to their bedding of tropical foliage to try Cassava.

Raleigh, N. C. *W. F. Massey.*

Correspondence.

The Meehan Nurseries and the Trees of Germantown.

To the Editor of GARDEN AND FOREST:

Sir,—A visit to Mr. Meehan's nursery, in Germantown, a suburb of Philadelphia, will well repay a lover of trees. In no other establishment are American trees and shrubs raised in such numbers. Long ago Mr. Meehan recognized two facts—that the climate of eastern America is particularly suited to deciduous-leaved plants, which grow more satisfactorily here than in any other country of the world, and that American plants are the best for America; so for years he has been busy in raising American Oaks, Maples, Ashes, Dogwoods, and scores of other plants which can only be obtained in large quantities from his nursery. Cornus florida, which is one of the most beautiful of all hardy flowering trees, is raised by hundreds of thousands. Trees not often seen in nurseries, like our Nyssa or Tupelo, the Sassafras, the Persimmon and the Sycamore, are raised here in numbers, as are all our Magnolias and the Tulip-tree. But the nursery is by no means exclusively devoted to the cultivation of American plants; many exotic species are cultivated on a large scale, and it is certainly within bounds to say that the stock of young plants of the beautiful Japanese Viburnum plicatum is larger than can be found in all other American and European nurseries combined.

The Germantown nurseries contain a number of remarkable and interesting plants. Here is the original plant of the now well-known weeping Cornus florida, discovered in the woods near Baltimore, and the original plant of Halesia Meehani, a chance seedling raised by Mr. Meehan, and figured in GARDEN AND FOREST (see vol. v., p. 535). I noticed, also, a beautiful small specimen of a very distinct weeping variety of Prunus serotina and a fastigiate form of Picea Engelmanni, produced from a graft brought by Mr. Meehan from the timber-line on Gray's Peak, in Colorado; this is a compact, dense pyramid eight feet high, with very glaucous leaves, and, altogether, one of the most distinct and interesting conifers of recent introduction.

One of the best plants in the United States or Europe of the Japanese and northern China Quercus dentata can be seen here; it is fully thirty feet high, with a stout, well-formed trunk and spreading branches. The hardiness and value here of this handsome and very distinct tree appear to be demonstrated. Here, too, is the finest specimen of Cedrela Sinensis I have seen, a shapely plant nearly thirty feet high, which has flowered freely this year. A split in the trunk indicates, however, that it is not destined to grow to a great age, and shows, what has been noticed before, that Cedrela lacks the hardiness and constitution which make the Ailanthus, from the same region of northern China, one of the most valuable of all trees. In general appearance the two trees are not unlike, but the leaves of Cedrela are without the glands which characterize those of Ailanthus, and the flowers are produced in long hanging racemes. Near the Cedrela stands one of the best plants of Hovenia dulcis which can be seen outside of Japan. It is a slender tree thirty feet high, with spreading branches and a flat top, and has flowered profusely this year. There is a large specimen, too, of Zizyphus vulgaris, the Jujube-tree, covered with half-grown fruit; this beautiful tree, a native also of northern China, appears perfectly hardy in Germantown; it is well worth a place on every lawn for the beauty of its lustrous pinnate leaves. A remarkable plant of Pterostyrax hispidum is more than twenty-five feet high, with a tall straight trunk and wide-spreading branches loaded with its ripening fruit.

The great-leaved Oregon Maple, Acer macrophyllum, appears in three handsome specimens, twenty to thirty feet high, covered with its dark green leaves which surpass those of all other Maples in size. Two large plants of a peculiar and most distinct weeping form of Ulmus Americana, found near Galena, in Illinois, show the value of this variety as an ornamental tree. It is certainly one of the most distinct and beautiful of all weeping trees, and deserves to be better known and more generally planted.

Of plants in flower in the nursery nothing was so beautiful and interesting as Gordonia Altamaha, the rarest of all North American trees. Discovered long ago in Georgia by the Philadelphia botanist, Bartram, it has not been seen growing naturally for nearly a century, and has only been preserved through cultivated plants. Mr. Meehan grows it extensively, fully appreciating its value and the beauty of its large, fragrant, white flowers, which resemble those of a single-flowered Camellia, and continue to open for a long time in succession at midsummer, and of its large lustrous leaves which in autumn assume the most brilliant scarlet tints. Great masses of this plant may be seen near Horticultural Hall, in Fairmount Park, where it appears perfectly at home. It is strange that it is so rarely found in our gardens. No other summer-blooming hardy shrub or small tree at all equals it in beauty.

The comparatively new Rose, Madame Georges Bruant, I saw in flower here for the first time; it is a hybrid, raised at Poitiers by a nurseryman named Bruant, between the Japanese Rosa rugosa and the Tea-rose, Sombreuil. It is a vigorous-growing plant, with clustered, fragrant white flowers and pale glaucous foliage; it is very distinct from other hybrids raised from Rosa rugosa, and as it appears to be a free and constant bloomer it may be expected to prove a decided acquisition.

Among the Conifers, which are much less grown than deciduous-leaved plants, were two of much interest; one of these was a large plant of Retinospora squarrosa, a plant which deceived such a good botanist as Maximowicz, who considered it a species, but which here has entirely grown out of its juvenile squarrose-leaved form with the exception of two lower branches, and displays its true character, showing that it is only a juvenile form of Retinospora pisifera. The second was a plant of the so-called Retinospora ericoides growing into its mature form and showing that this plant, which has been weighed down with a dozen names, is only a juvenile state of the common Arbor-vitæ (Thuya occidentalis).

A stroll through the well-planted streets of Germantown shows the lover of trees that it is a town with special attractions. A hundred years ago, and through the early years of this century, Philadelphia was a centre of active botanical and horticultural interest, and the first good collections of trees made in the United States were made in its suburbs. In all the old Germantown gardens fine trees abound. Just by the high architectural fence which encloses the grounds of the Germantown Cricket Club—the best-housed of all such clubs—stands the first Virgilia tree, Cladrastis flava, planted in the United States, and near it grows a plant of Magnolia acuminata, which, perhaps, is not surpassed in size by any other planted specimen of this species; it must be nearly eighty feet high, with a trunk which girths over ten feet. In spite of its age, this noble tree is in perfect health and beauty, and worth a long day's journey to see. Interesting, too, is a tall Pecan Hickory in a neighboring garden, raised from a nut brought by Thomas Nuttall from Arkansas; and not less interesting is the first Magnolia macrophylla planted in this country; it stands in Vernon Park, one of those small parks for which the people of Philadelphia are indebted to the zeal and industry of Thomas Meehan. This little pleasure-ground is distinguished by the presence of the most remarkable Papaw trees (Asimina triloba) it has been my good fortune to see. They are some forty feet tall, with trunks ten or twelve inches in diameter and broad pyramidal heads of dark foliage. As it grows here the Papaw is an ornamental tree of high value.

Returning from Germantown to Philadelphia by the Wissahickon and Fairmount Park, one cannot help being struck with the difference in the appearance and condition of the trees growing on the grounds of individuals in Germantown and those growing on land belonging to the people of Philadelphia. These last are in a dangerous and discreditable condition. Many are dead; others are filled with dead branches and in a fair way to destruction; some are overcrowded, and others need the protection of neighboring trees; some are starving to death, and many are infested with noxious insects. In this great park of nearly two thousand acres there are many noble and beautiful trees. They are less abundant, however, than those which need care and attention, and it is quite within bounds to say that, at the present time, there is no other large public park in the United States in which the trees show greater evidence of indifference, neglect and bad management. On the other hand, Horticultural Hall, which a few years ago was in a deplorable condition, is now in excellent order, and filled with well-grown and well-selected plants; it would be a credit to any garden.

Philadelphia, Pa. *S.*

Orchids at North Easton, Massachusetts.

To the Editor of Garden and Forest:

Sir,—Visitors to Langwater Gardens, at North Easton, Massachusetts, the summer residence of F. L. Ames, Esq., will always find some rare and beautiful Orchids in bloom, for in the number and value of its individual specimens this collection is unrivaled, and many of the plants are unique.

A few Miltonias continue in bloom, and I was particularly fortunate in seeing the lovely and unique M. vexillaria Amesiana in its full beauty. The flowers are of the largest size, and conspicuous at the base of the labellum is a large maroon blotch. They somewhat resemble those of M. superba, but with deeper radiating lines, and in this respect differing from all other varieties of this species.

The flowers of the variety Statteriana of Lælia elegans Turneri are violet-purple, with an intensely deep purple lip. The variety Littleana is a robust grower, bearing immense spikes, often with ten flowers. The color of the whole flower is clear purple, with a rich violet-purple lip, and white, or nearly white, inner lobes. This, too, is a unique specimen. L. elegans Tenebrosa is the deepest-colored form of L. elegans known, the bright purple coloring being carried well back into the throat.

Cattleya Warscewiczi Roehelliensis, originally known as the White Gigas here, is the only plant known. It is a magnificent specimen, in itself worth traveling a great distance to see. C. Schofieldiana is a form of C. granulosa very rarely seen, and the specimen here is distinctly elegant, the markings are striking and the flowers large. The ground-color is a beautiful tawny yellow, the middle lobe is covered with rich magenta-purple papillæ. In C. Calummata, a hybrid between C. Acklandiæ and C. intermedia, the coloring and markings partake of the former parent, which are chocolate-brown sepals and petals, barred and striped with yellow. The lip is deep rose. In form it resembles C. intermedia. Lælio-Cattleya Nyssa is a new hybrid between Lælia crispa and Cattleya gigas, and one of the most beautiful in color. It is in the way of L. Exoniensis, with a deep, rich, reddish purple, fringed lip, and golden throat.

Sophro-Cattleya Batemaniana is the first bigeneric hybrid, the result of crossing Sophronites grandiflora with Cattleya intermedia. The flowers are of a soft, pleasing, warm shade, and somewhat intermediate in character. A still more remarkable bigeneric hybrid is between Epidendrum radicans, a plant growing from three to five feet tall, and Sophronites grandiflora, growing only as many inches. Epiphronites Veitchii is a name suggestive of its parentage, and of Messrs. Veitch as the raisers. In general habit it resembles Epidendrum, growing about one foot high. The bright reddish scarlet coloring of its flowers is of a richness unsurpassed by any other Orchid. The plants bloom in a very small state, and remain a long time in perfection.

Cypripedium H. Ballantyne is a hybrid raised by Messrs. Veitch between the beautiful C. purpuratum and the dainty C. Fairrieanum, and named in honor of Baron Schröder's gardener, at the Dell, Egan, Windsor, England. C. nitidissimum is a chaste and lovely hybrid in the way of C. grande, and, although not so stately, it is graceful and distinct.

Wellesley, Mass. *T. D. Hatfield.*

Nature's Landscape-gardening in Maine.

To the Editor of Garden and Forest:

Sir,—Every lover of nature must have noticed how beautiful the edge of a wood is in early summer, when the dark branch of an evergreen throws out the paler green of some deciduous neighbor. In the clearing and planting which are necessary on some places every year, should we not try to get like effects? In driving along the wooded roads in the district where the grounds lie which are to be developed, one who notes which are the handsomest of the native trees can get an idea as to which ones to plant and how these should be grouped; but the appropriate massing of foliage, so as to secure the best effect from soft harmonies or bold contrasts of color, requires much study and critical knowledge. After the varieties have been decided upon comes the serious question of grouping for contrasting color, and the arrangement of those colors for different seasons of the year and varying lights demands close observation and study. The White Pine makes an excellent background for the Red Oak (Q. rubra), which in spring emphasizes the gray tree bearing its "candles," as the country children call the new white growth, while in the autumn the Pine retires to its place as foil for the Oak, which is first gorgeous in red and fades into brown as it prepares for the win-

ter. But no one wants to keep the White Pine always in the background, for when it is found in clumps it is easy to grow tall ferns beneath it, with a carpet of Linnæa, Partridge Berry and Blueberry, and it provides itself the clean brown needles, which alone have been enough to endear it to every one. The Hemlock and White Ash are two more trees which are striking together in spring or fall, and at the turn of the leaf the Scarlet Maple seems ablaze near a group of the White and Black Spruces. Here, on the coast of Maine, the Gray Birch (B. populifolia) gets nothing but abuse, as few people seem to remember its brilliant patches of green among the Spruces in spring-time, and in the early autumn how the shiny, fluttering leaves glisten in the sunlight. But once the coloring of the wood-sides is observed the list grows longer, and the stately Yellow and Paper Birches are noticed in damp places, and the Pitch Pine, clinging like a limpet to an impossibly steep rock, looks like a tree on a Japanese fan.

To give an effect of distance on a small place, why could we not plant a line of dark, thick-foliaged trees on distant points, then to leave a space, planting a second grove of smaller light-foliaged trees? The space will give distance and depth to the background, while the darker green trees, if placed on the most distant height, are valuable at sunset, as they always seem to keep the last light. If there is to be a large lawn, it is as well to keep in mind that the creeping shadows made by trees planted on the the western edge will be very beautiful in the long summer afternoons.

It will be noticed that only such trees as grow on the coast of Maine are mentioned, as I am most familiar with that part of the country.

Bar Harbor, Me. *Beatrix Jones.*

The Columbian Exposition.

The Front Esplanade of the Horticultural Building.

THE extreme front of the Horticultural Building is something over a hundred feet west of the lagoon, opposite the wooded island. The exterior borders of the lagoons, except the extreme north-eastern and southern arms, are bounded by a perpendicular wall some four or five feet high, upon which is placed a heavy balustrade. This architectural feature serves the double purpose of blending the lagoon with the formal environs and of appearing to set the buildings upon a platform or terrace, thereby increasing their height and importance. The spaces between this railing and the contiguous buildings are essentially esplanades, and some of them are very effective. The central and important portion of the esplanade of the Horticultural Building is an area about sixty feet wide and extending the length of the building—1,000 feet. Upon the east it is bounded by the broad gravel walk skirting the lagoon, and on the west by another thoroughfare. The centre-piece of this esplanade is a Lily-tank with masonry walls, containing forty species and varieties of water-plants, shown by William Tricker, of Staten Island. Nymphæas predominate, of which the best, at this writing, are Nymphæa Devoniensis superba, a plant with rich bronze leaves and pink-red flowers; N. gracilis, with its starry, sharp-petaled, white flowers standing a foot or more above the leaves, and N. Zanzibarensis and the varieties rosea and azurea. The Water-poppy, Limnocharis Humboldtii, also makes a show with its saucer-like sulphur flowers. Some good Papyrus-plants break the monotony of the pond.

Upon either side of this Lily-pond are two nearly square areas of sod, with flower-beds, beyond which, in each direction, a long parterre stretches away nearly 400 feet. These long areas, which stretch off both north and south, were simply quiet, unornamented lawns early in the season, and it was the hope of the landscape-department that they might be left undisturbed in order to enforce the effect of the lagoon terrace and add a proper dignity to the great building. But land was needed for parterres, and in June the sod was cut into seventy-nine beds, all but three of which are planted to Cannas. This great display of Cannas, extending over a total length of a thousand feet, is now the most conspicuous feature of the environs of the Horticultural Building. There is some chance for criticism in the arrangement, for the many small beds give a spotty effect. If the same plants had been massed into a broad central avenue, or even into two narrow marginal avenues, the effect would have been more continuous and, I think, more impressive. The plants were late in going into the ground, and the soil is sandy and poor; yet the display, as a whole, is very bold at the opening of September, and it certainly has great merit. The varieties are not numerous, and for that reason the exhibit is all the better. They represent the best of the new French or dwarf Cannas, a class of plants which has been greatly improved in very recent years, especially in all the best qualities of bloom. In the two small areas upon either side of the Lily-tank, J. C. Vaughan shows eighteen beds of Cannas—the central bed in the south area being the best single bed in the collection at this writing. The central portion of the bed is occupied by a heavy planting of Florence Vaughan, which bears a very large yellow flower, thickly and uniformly spotted with brown. About this is a band of J. C. Vaughan, a dull red flower and dark bronze foliage. This is skirted by George W. Childs, a variety of the Madame Crozy type, but bearing more gold upon the petals. The companion bed in the north area has a centre of the excellent J. D. Cabos, with outer bands of Explorateur Crambel and Florence Vaughan. Among other varieties shown by Vaughan are Egandale, a very dark-leaved and dull red variety of great merit, and Mademoiselle de Crillon, the nearest approach to a pure yellow Canna upon the grounds.

The chief interest in the Canna exhibits, however, attaches to the competitive displays of New York and Pennsylvania. New York occupies most of the south parterre, nearly 400 feet in length, and Pennsylvania has its twin upon the north. Much has been said concerning the comparative merits of these exhibits, and the competition is certainly close; yet it is clear that the New York display is ahead at this time in the vigor of the plants and condition of bloom. I do not know if this is due to any difference in soil or to better plants or more careful management. The varieties are essentially the same in both. F. R. Pierson & Co. supply all the New York plants. The best single bed in this collection is a large circular mass of Capitaine P. de Suzzoni, one of Crozy's varieties introduced to the American trade in 1892. It is a tall and bold grower, holding its long clusters of large yellow, brown spotted, flowers well above the leaves. The Pennsylvania plants are furnished by Henry A. Dreer and Robert Craig. Altogether, Madame Crozy is probably the best Canna in the entire collection, especially when one considers its long season of bloom and good constitution. Star of '91, the American variety of this type, does not appear in the collections, except in a small bed shown by Vaughan, an indication that it lacks in staying qualities. The other best Cannas, judging from this collection, are J. D. Cabos, foliage dark bronze, flowers copper-yellow; Paul Marquant, pinkish salmon-red, introduced here last year; Mademoiselle de Crillon, clear yellow, with a darker throat, but flowers small; Capitaine P. de Suzzoni, already described; François Crozy, salmon, very faintly bordered with gold; Florence Vaughan and Egandale, already described; Alphonse Bouvier, dark red, tall grower, introduced in America last year, and Miss Sarah Hill, a low plant with very dark, almost maroon-red, flowers, also introduced last year. Other prominent varieties are Count Horace de Choiseul, brilliant red; Paul Bruant, light red; Explorateur Crambel, dull red; Charles Henderson, dull red, lowest petal blotched; Secretary Stewart, rich red; Enfant de Rhone, salmon-red; Duchesse de Montenard, lemon, spotted red; Baronne de Renowardy, dull rose-red, introduced last year by Dreer; Gustave Sennholz, light red; Secretary Nicholas, dark salmon-red; Statuaire Fulconis, red, introduced in this country last year; Edouard Michel, bright salmon-red; The Garden, with large bright salmon-red flowers; Little Gem, much like Star of '91, except that the flowers are smaller and a trifle lighter, with more yellow inside. At the south end of the south parterre Pitcher & Manda show five choice beds of seedlings, and at the north end of the north area H. P. Potter, of Wilmington, Delaware, shows a new American seedling which reminds one of Florence Vaughan, but it has a smaller flower, which is more densely spotted with red. Both ends of this north area are introduced by a large keystone of carpet bedding, and the north end of the New York display has a shield made of succulents.

At the rear of this central area, lying against the floral curtains upon either side of the dome entrance, are the two spaces which were devoted to Pansies early in the season. Some small beds of Pansies still persist upon the inside of the spaces, but the great central beds are filled with Cannas and Ricinus, furnished by Pierson. The soil is dry and poor and the plants are yet small, but they will probably make a great show later on. Upon either end of both of these areas are two small beds of Coleus and Solanum integrifolium, and some carpet beds of Alternantheras, House-leeks and Agaves. Two smaller areas in front of the end pavilions are filled with a large and interesting collection of Cacti, furnished by Mr. Blanc for the Pennsylvania display.

Along the north-east corner of the Horticultural Building is the display of French Gladioli, shown by Victor Lemoine, of Nancy, and Forgeot, of Paris. Lemoine, who is known to Gladiolus fanciers throughout the world, shows over sixty va-

rieties, about twenty-five plants of each. This corner proves to be a windy location, and most of Forgeot's plants have suffered from the late storms; and Lemoine's, which are tied to cords, have also been injured. Yet both collections passed the height of their bloom before the inclement weather appeared, and they have attracted much attention. Probably few people, even among flower-lovers, are aware of the great variety and beauty of Lemoine's types of Gladioli.

Chicago, Ill. *L. H. Bailey.*

Notes.

Arkansas still continues to show a remarkable collection of apples at the Columbian Exposition. The specimens are very large, well colored and free from insect and fungous injuries. They come from the northern part of the state, which certainly possesses great capabilities in apple-growing.

A beautiful example of wood-carving is exhibited by the Government of India in the Forestry Building in Chicago. The king, his courtiers and many other figures are represented in teakwood, the production being an exact copy of a door in the Rajah's palace in Mandalay, the capital of Upper Burmah.

A recent number of the *Boston Globe* states that Dr. Oliver Wendell Holmes has made a practice for some years of taking the girth of the large Elms and other trees which he has seen in his daily drives. He has, however, only found four trees with a girth greater than fifteen feet. The tape has usually been applied at a point about five feet above the soil, the place selected for measuring, as Dr. Holmes states, being the smallest circle of the trunk between the swell of the roots and the swell of the branches.

Monsieur André describes in a recent issue of the *Revue Horticole* a new hybrid Clematis, produced by a French horticulturist at Lyons by fertilizing Clematis Pitcheri, of our trans-Mississippi region, with the pollen of the Texan C. coccinea. A beautifully executed colored figure displays a flowering branch of this new hybrid, which has preserved the vigor and the numerous stems of the strong-growing C. Pitcheri, and the brilliant color of the flowers of C. coccinea. It may be described as an early-flowering C. Pitcheri with the scarlet flowers of C. coccinea.

The California papers are describing a new Plum which Luther Burbank has temporarily named Perfection and which he produced by crossing the Japanese Satsuma upon the Kelsey. The fruit is almost exactly the shape of an inverted pear, that is, with the stem attached to what corresponds to the blossom end of a pear. The amber-colored flesh is juicy and translucent, with a striking and agreeable flavor, the pit small and shapely; the color deepens from a deep uniform cherry-red to a rich claret as the fruit ripens, and when fully matured it is still in firm shipping condition.

The German department at the World's Fair shows two Cannas, in its collection on the wooded island, which appear to be new to America. One is Germania, a plant of the Madame Crozy type, with very large, bright light red flowers faintly margined with gold and having a yellow throat. Kaiser Wilhelm II. is a taller plant, with flowers of clear red. Both are shown by William Pfitzer, of Stuttgart, who has also sent for exhibition a painting of a new Canna which he calls Königin Charlotte. The picture shows an enormous truss of the Madame Crozy type, but with a broader band of gold and five very large and well-developed petals.

Mrs. Hinton, who has been a student of Japanese garden-art for the past six years, has recently arrived at Chicago, and observes that the so-called Japanese garden on the wooded island has nothing Japanese about it. This is the garden which it was proposed to give to the city of Chicago, along with the Hooden temple. The garden in the Horticultural Building, Mrs. Hinton pronounces excellent, except that it should have had more Matsus, or dwarf Pines. Many such Pines were sent for the garden, but were lost through the inclement weather of last winter. A number of fine specimens were sent from the gardens of the Imperial University at Tokio.

The most noticeable plants at Pitcher & Manda's nursery last week were especially well-grown and flowered specimens of Aristolochia elegans and Bougainvillea glabra. These were planted out in the back border of one of the Chrysanthemum-houses, where they had evidently found agreeable quarters. Aristolochia elegans is the handsomest flowered member of the family; its quaintly mottled flowers, with dark, lustrous, brown eyes, were borne in the greatest profusion, and would be appreciated in the choicest collection of climbers. Being free from the usual offensive odor of the family, it is a capital subject for cutting and choice decorations, the light green clean foliage adding another charm. Bougainvillea glabra is a common plant in greenhouses, but it is seldom seen in as good condition as grown here, where the loosely trained vine was covered with clusters of the bright rosy bracts as large as those which hang from the porches of some of the houses in Bermuda. Neither of these vines had had the rest usually deemed necessary in their cultivation.

In the first volume of Garden and Forest, Mr. Pringle wrote a note in praise of the Milla biflora as he saw its white stars spangling the prairie on the high plains of the Mexican Cordilleras. This note was called to mind last week by the long stretches of this flower which were blooming, in beds nearly a quarter of a mile long, on the grounds of Mr. John Lewis Childs, Floral Park, Long Island. The snow-white and fragrant flowers, two inches across, with their grassy foliage and wiry stems, were blooming beautifully out-of-doors, and it is no wonder that some florists use them abundantly for cut flowers in summer in the New York market. Near them, in still greater profusion, were the orange-scarlet and bell-shaped, squill-like flowers of Bessera elegans. Not so abundant, but very attractive, were the solitary flowers of the white and the rosy Zephyranthes, which belong to the Amaryllidæ. They were very bright and effective, and all were particularly striking at this time just after the cyclone had swept over the ground and prostrated acres of taller plants, like the new hybrid Gladioli, for which this place is famous. Most of the Lilies stood up very well under the storm, and some of the annual Phloxes and Coreopsis especially looked uncommonly bright.

California plums, in large variety, have been selling for less than the home-grown fruit, but the supply has been diminished during the past week, the prevailing prices not paying the shippers. Varieties not noticed before are Hungarian, Jefferson and Walling, while an unidentified small green plum of delicious flavor is selling for thirty-five cents a dozen under the name of Simoni. Green Gages are coming from the Hudson River district, large blue plums from western New York at forty cents for a twelve-pound basket, and Maryland and Delaware damsons are six cents a quart. There are but few choice peaches from Delaware and New Jersey, and these sell for thirty-five cents a dozen, or two dollars a basket. The main supply consists of windfalls, and picked fruit in good condition but inferior in size. California peaches sell at a dollar and twenty-five cents for a box containing seventy peaches, or fifty to sixty cents a dozen. Clairgeau pears are coming in from California. The first importations of green ginger-root and of the new crop of oranges, from Jamaica, are now being offered. New celery from Michigan has been in the markets since the middle of August. The abundance of tropical fruits is shown by the fact that such fruits as mangoes, alligator pears and Japanese persimmons have become common on the sidewalk stands, while nectarines sell as low as ten cents a dozen, the best bringing twenty-five cents a dozen.

In the last catalogue of Ellwanger & Barry the directions given for cultivating Strawberries may be summarized as follows: The Strawberry may be successfully grown in any soil adapted to the growth of ordinary field or garden crops. The ground should be thoroughly drained if wet, then trenched or plowed, at least eighteen inches deep, and properly enriched as for any garden crop. For family use, plants may stand fifteen inches apart each way, and hill-culture is preferable. To obtain fine, large, high-flavored fruit, pinch off the runners as fast as they appear, repeating the operation as often as may be necessary during the summer and early autumn. Every runner thus removed produces a new crown, and in the fall the plants will have formed large bushes or stools, on which the finest strawberries may be expected the following season. In the mean time the ground among the plants should be frequently stirred. Where the winters are severe, with little snow for protection, a slight covering of leaves or litter, or the branches of evergreens, will be of great service. This covering should not be placed over the plants until after the ground is frozen, usually from the middle of November till the 1st of December in this locality. Fatal errors are often made by mulching too heavily and too early. Care must also be taken to remove the covering in the spring, just as soon as the plants begin to grow. Before the fruit begins to ripen, mulch the ground around the plants with short hay or straw or anything of that sort. This will keep the fruit clean, prevent the ground from baking, and lengthen the fruiting season. A bed managed in this way will give two full crops, and should then be plowed down, a new one in the mean time having been prepared to take its place.